

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A temperature measuring method of measuring a temperature of a susceptor which is disposed in a conductive vessel and on which a substrate to be processed is to be placed, the conductive vessel being set to a ground potential and having a space formed therein in which a plasma is generated by application of a radio frequency power, the method comprising:

forming an opening in a portion of the conductive vessel facing a predetermined temperature measured portion on a rear face side of the susceptor, the opening having ~~a size~~ not allowing a diameter of 1/50 or less of a wavelength of the radio frequency power to leak suppress a leakage to an external part; and

detecting, at an external part of the opening, an infrared ray emitted from the temperature measured portion to measure the temperature of the susceptor by a radiation thermometer.

Claim 2 (Cancelled).

Claim 3 (Currently Amended): A temperature measuring method as set forth in claim 1, wherein a frequency of the radio frequency power is in a range of 40 MHz or higher to 100MHz.

Claim 4 (Original): A temperature measuring method as set forth in claim 1, wherein the temperature measured portion of the susceptor has a shape recessed toward a face on which the substrate to be processed is to be placed.

Claim 5 (Original): A temperature measuring method as set forth in claim 1,  
wherein the temperature measured portion of the susceptor is structured to act as a  
blackbody to the infrared ray.

Claim 6 (Currently Amended): A plasma processing apparatus comprising:  
a conductive vessel being set to a ground potential and having a space formed therein  
in which a plasma is generated by application of a radio frequency power; ~~and~~  
a susceptor which is disposed in said conductive vessel and on which a substrate to be  
processed is to be placed[[,]]; and  
a radiation thermometer for measuring a temperature of the susceptor,  
wherein the susceptor has a temperature measurement hole disposed at a  
predetermined portion for measuring a temperature of the susceptor on a rear surface side of  
said susceptor,

wherein said conductive vessel has an opening that is formed in a portion facing [[a]]  
~~the predetermined temperature measured portion on a rear face side of said susceptor~~ and that  
~~has a size not allowing the radio frequency power to leak to an external part~~ a diameter of  
1/50 or less of a wavelength of the radio frequency power to suppress a leakage, and [[a]]

wherein said radiation thermometer detects is directly installed at an external part of  
the opening[[,]] to detect an infrared ray emitted from the temperature measured portion to  
measure a temperature of said susceptor.

Claim 7 (Cancelled).

Claim 8 (Currently Amended): A plasma processing apparatus as set forth in claim 6,

wherein a frequency of the radio frequency power is in a range of 40 MHz or higher to 100MHz.

Claim 9 (Currently Amended): A plasma processing apparatus as set forth in claim 6, wherein the temperature ~~measured portion~~ measurement hole of said susceptor has a shape recessed toward a face on which the substrate to be processed is to be placed.

Claim 10 (Currently Amended): A plasma processing apparatus as set forth in claim 6, wherein the temperature ~~measured portion~~ measurement hole has a top portion of said susceptor which is structured to act as a blackbody to the infrared ray.

Claim 11 (New): The plasma processing apparatus as set forth in claim 6, further comprising an insulating support member for supporting the susceptor, the insulating support member having a through hole such that an infrared ray emitted from the inside of the temperature measurement hole pass through toward the radiation thermometer through the temperature measurement opening, the through hole having a diameter slightly larger than the temperature measurement hole.

Claim 12 (New): The plasma processing apparatus as set forth in claim 6, wherein said conductive vessel is formed of an anodized aluminum.

Claim 13 (New): The plasma processing apparatus as set forth in claim 6, wherein said temperature measurement opening has a diameter of about 10mm.

Claim 14 (New): The plasma processing apparatus as set forth in claim 6, wherein said susceptor is formed of an aluminum and the top portion thereof is anodized.

Claim 15 (New): The plasma processing apparatus as set forth in claim 6, wherein a black body tape is pasted on a top portion of said temperature measurement hole.